UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ENTROPIC COMMUNICATIONS, LLC,

Plaintiff

v.

CHARTER COMMUNICATIONS, INC.,

Defendant.

Civil Action No. 2:22-cv-00125-JRG

JURY TRIAL DEMANDED

PLAINTIFF'S OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiff Entropic Communications, LLC ("Entropic") brought this case against Defendant Charter Communications, Inc. ("Charter") for the infringement of U.S. Patent Nos. 8,223,775 (the "'775 Patent") (Ex. 1); 8,792,008 (the "'008 Patent") (Ex. 2); 9,825,826 (the "'826 Patent") (Ex. 3); 8,284,690 (the "'690 Patent") (Ex. 4); 9,210,362 (the "'362 Patent") (Ex. 5); and 10,135,682 (the "'682 Patent") (Ex. 6) (collectively, the "Patents-in-Suit").

Consistently throughout, Entropic believes the terms should be given their plain and ordinary meaning as would be understood to a person of ordinary skill in the art ("POSITA") in light of the claims, specification, and prosecution history. Entropic does not seek to import limitations or change the meaning of any of the terms. And this is not a case where a plaintiff seeks to use plain meaning to loosen the claim scope to stretch the patents. The Patents-in-Suit were invented at leading companies in the satellite and cable technology market (Entropic and MaxLinear). The infringement in this case rests squarely in the middle of the claims.

Meanwhile, Charter's positions are quite plainly attempts to win the case via *Markman*. Given the nature of the patents and their provenance, Charter cannot propose reasonable claim construction positions that afford a path to avoiding infringement. This is why nearly half of Charter's positions (seven of the sixteen term groupings) are indefiniteness, and the actual constructions put forth rewrite the claims with new limitations from the specification.

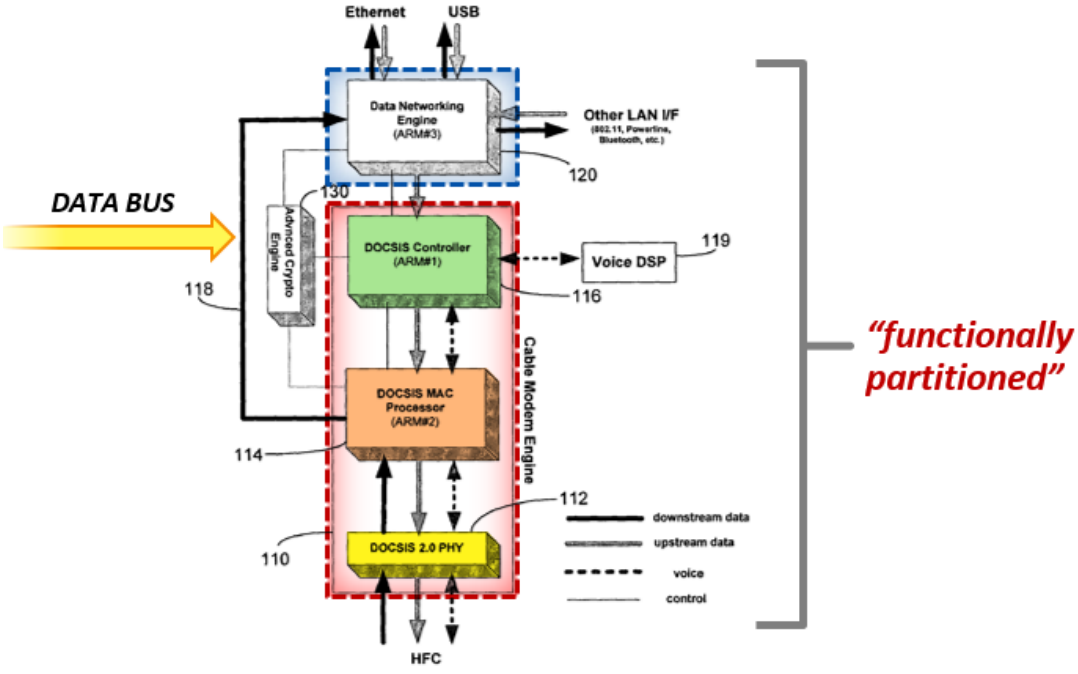
II. OVERVIEW OF THE PATENTS-IN-SUIT

A. '775 Patent

The '775 Patent, titled "Architecture for a Flexible and High-Performance Gateway Cable Modem," relates generally to a novel architecture for cable modems. The '775 Patent discloses various embodiments providing a "highly flexible, high performance system capable of handling

multiple cable modem voice, data and networking services" wherein cable modem ***functions*** are "completely partitioned" from data networking ***functions***. *See* '775 Patent, 1:61–2:4. In the disclosed embodiments, this partitioning is accomplished, for example, "by localizing data networking functions in the data networking engine processor and localizing cable modem functions in the cable modem engine processor." *Id.* at 4:16–19.

Fig. 1 of the '775 Patent, below[1], illustrates an exemplary cable modem system architecture, with a data networking engine **120** (blue) and cable modem engine **110** (red), wherein the cable modem engine includes a DOCSIS controller **116** (green), DOCSIS MAC processor **114** (orange), and DOCSIS 2.0 PHY **112** (yellow), and communication path **118** is a data bus that allows for communication between the DOCSIS MAC processor and the data networking engine:



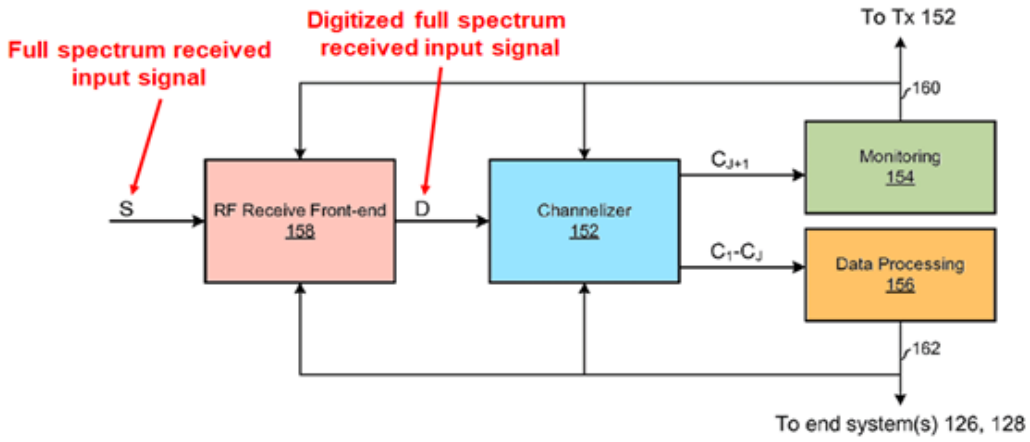
B. '826 and '008 Patents

The '008 Patent, titled "Method and Apparatus for Spectrum Monitoring," relates generally

[1] All emphasis and annotations added unless otherwise noted.

to methods and apparatuses for monitoring cable or satellite television signals. *See, e.g.*, '008 Patent, Abstract, 2:34–3:4 (cable embodiment), 4:51–5:11 (satellite embodiment). The '826 Patent is a continuation of the '008 Patent and relates to the same subject matter.

The '826 and the'008 Patents disclose methods and apparatuses that can be implemented in Customer Premises Equipment (CPE) that enable the CPE to: receive a cable or satellite television signal, digitize said signal, determine a characteristic of the digitized signal, and then report the determined characteristic back to the source of the signal (*i.e.*, the network-based service providers) without interrupting normal customer service. Specifically, the patents disclose an apparatus that is capable of performing spectrum monitoring. *See, e.g.*, '008 Patent, FIG. 1B. To perform spectrum monitoring without interrupting services, as shown in Fig. 1B below, the '008 Patent discloses a monitoring apparatus capable of (1) receiving and digitizing a full spectrum signal in a front-end **158** (red); (2) selecting specific portions of the outputs of the front-end **158** using a channelizer **152** (blue); (3) concurrently outputting one portion to a monitoring device **154** (green) and another portion to a data processing device **156** (yellow); and (4) sending network maintenance messages based on a characteristic of the received signal.



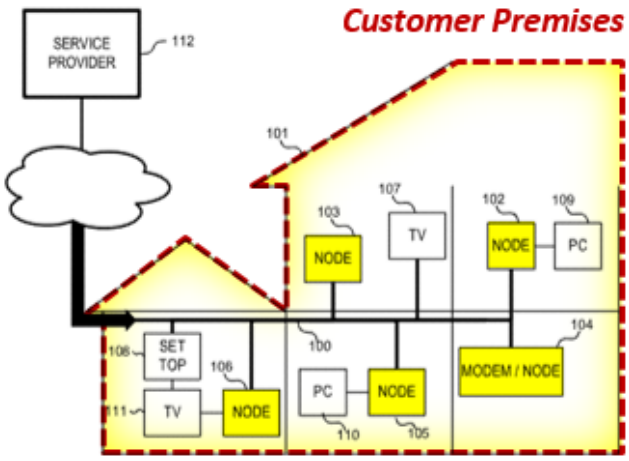
Starting with receiving and digitizing the spectrum, the front-end **158** receives a signal that spans an entire television spectrum. This signal is then digitized using one or more analog-to-

digital converters (ADCs) located in the front-end **158**, which generate a digital signal (D). *See* '008 Patent, 2:44–59, 3:11–16, 4:45–50, 5:45–65. Next, a channelizer selects portions of the digitized signal D to concurrently output to a monitoring module **154** and to a data processor **156**. *See id.* at 4:28–50, 6:19–36; *see also* 3:20–32, FIG. 1C, FIG. 3.

The monitoring module **154** determines a characteristic of the received signal S pertinent to performance of the communication system. *Id.* at 3:5–60; *see also* 5:12–47, 6:19–36, FIG. 1C, FIG. 4. Once this characteristic is determined, the monitoring module then can send network management messages to ensure the quality of the received signal. *See id.* at 3:51–60. Overall, the '008 Patent discloses methods and apparatuses that allow network-based service providers to better monitor their networks by increasing the service providers' ability to remotely monitor CPE.

C. '690 Patent

The '690 Patent, titled "Receiver Determined Probe," relates generally to aiding in the diagnosis of problems with subscriber services. *See* '690 Patent, 1:31–34. The '690 Patent describes the use of *probes* to "characterize the communication channel over which data is to be sent between nodes of the network." *Id.* at 1:41–43. Exemplary nodes are illustrated in Fig. 1:



'690 Patent, FIG. 1. Nodes are programmed to generate a probe transmission in response to a probe request. *See id.* at 1:66–2:3. The probe request may "specif[y] a plurality of parameters to be used

. . . to generate a probe." *Id.* at 2:3–6. The responsive probe may then comprise a plurality of parameters used for channel assessment, maintenance procedures, and/or off-site network diagnosis. *See id.* at 1:50–51, 2:20–27, 4:25–27.

D. ’362 Patent

The ’362 Patent, titled "Wideband Tuner Architecture," relates generally to a receiver system configured to receive a number of channels across a broad radio frequency (RF) spectrum. *See* ’362 Patent, 1:15–18. The receiver contains one or more analog-to-digital converters (ADC’s) configured to digitize an incoming analog signal. *Id.* at Abstract, 1:49–51. In certain embodiments, the receiver further comprises one or more mixers configured to downshift the signal, as well as circuitry configured to select and output a number of desired channels. *Id.* at Abstract, 1:45–49.

E. ’682 Patent

The ’682 Patent, titled "Method and System for Service Group Management in a Cable Network," relates generally to organizing cable modems (CMs) into service groups based on signal-to-noise ratio (SNR) related metrics. The ’682 Patent describes how a cable modem termination system (CMTS) may "determine, for a plurality of cable modems served by the CMTS, a corresponding plurality of SNR-related metrics." ’682 Patent, Abstract. The CMTS may assign cable modems to service groups based on each cable modem’s performance on their respective SNR-related metrics. *See id.* at 5:37–39; 8:7–9. The ’682 Patent further discloses that the CMTS may build a composite profile for the service group (termed "composite SNR-related metric") based in part on the worst-case SNR of the cable modems within the service group. *Id.* at 4:14–24. This composite SNR-related metric allows the CMTS to select physical layer communication parameters that are most appropriate for the cable modems within a given service group, which in turn may lead to optimized performance for the cable modems. *Id.* at 5:7–20. For example, cable

modems within the same service group may share similar SNR-related metrics, and thus would benefit from similar physical layer parameters, which makes application of the same composite SNR-related metric to the similarly-situated cable modems advantageous. *Id.* at 4:14–17; 5:7–20; 5:40–57.

III. PERSON OF ORDINARY SKILL IN THE ART

Claim terms are viewed from the perspective of a POSITA. *Lazare Kaplan Int'l v. PhotoScribe Tech's, Inc.*, 628 F.3d 1359, 1368 (Fed. Cir. 2010). Entropic contends a POSITA "would have been an Engineer with at least a Bachelor's Degree in Electrical Engineering (or equivalent), with at least two years of experience developing broadband/cable TV/satellite communication systems and solutions." Ex. 7, Kramer Decl. ¶ 49.

IV. CONSTRUCTION OF TERMS

A. '775 Patent

Claim Term	Entropic's Construction	Charter's Construction
"a data networking engine implemented in a first circuit that includes at least one processor . . ." (cl. 18)	Plain and ordinary meaning. No construction necessary.	Indefinite.
"a cable modem engine implemented in a second circuit that includes at least one processor. . ." (cl. 18)	Plain and ordinary meaning. No construction necessary.	Indefinite.

The Court should construe these according to their plain and ordinary meaning because:

- The claim language uses standard engineering terms (*e.g.*, circuit and processor), which Charter and its expert admit were well-known.
- The specification explicitly describes two separate engines, each comprising circuitry including one or more processors, each handling "data networking" and "cable modem" functions, respectively.
- This Court has previously found similar "circuit" claim language not to be indefinite.

By the time of the '775 Patent, "cable modems" and "data networks" were ubiquitous terms known to both POSITAs and lay people. Kramer Decl. ¶ 84. Likewise, "engine" is used

generically—modified by the words "cable modem" and "data networking"—describing the components that drive the data networking and cable modem functionality, respectively. *See id*.

Charter's own expert, Dr. Kevin Almeroth, relies on a dictionary definition which actually confirms the point. Circuits are "[a] combination of electrical components interconnected ***to perform a particular task***." Ex. 8, Almeroth Decl. ¶ 65 (citing Appx. C at 99); *see also* Kramer Decl. ¶¶ 83, 88. Furthermore, a POSITA would have no trouble understanding the meaning of a circuit including a processor—itself a well-known term—that performs specific functions. *See e.g. Biax Corp. v. Sun Microsystems, Inc.*, 2:06-cv-364 (E.D. Tex. Jul. 18, 2008) (construing "a first circuit" to mean "an assemblage of electronic elements"); *see also Linear Technology Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) ("when the structure-connoting term 'circuit' is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to [POSITAs]"). The disputed claim language recites common terminology familiar to ordinary artisans and lay people. It requires no construction.

The specification accords with the plain meaning. The two claimed "engines" are disclosed as components of the overall system, with each engine responsible for the "cable modem" and "data networking" functions respectively. A POSITA would have recognized the '775 Patent teaches that "first" and "second" circuits in the two engines are separated by the functions that the circuits perform. *See e.g. id.* at 4:13–16 ("Functional Partitioning. Cable modem **100** completely partitions data networking functions . . . from DOCSIS cable modem functionality."). That is, the first circuit performs data networking functions, and the second circuit performs cable modem functions. *See* Kramer Decl. ¶ 84; *see also* '775 Patent, FIGS. 1 and 2 (showing clearly delineated data networking engine ("DNE") **120** and cable modem engine ("CME") **110**).

Charter seems to argue that a POSITA could not understand how to distinguish between

different components (*e.g.*, circuits) in an integrated system, and this alleged problem is so bad that it invalidates the claim. That position defies common sense. It ignores that electrical engineers routinely design subcomponents of consumer electronics, even if the components reside on the same chip—that is exactly what System-on-Chips (SoCs) are all about. This was understood at the filing date: consumer electronics routinely were a patchwork of "circuits"—often from different sources—assembled together. *See* Kramer Decl. ¶¶ 83–84. As Entropic's expert Dr. Richard Kramer explains, a POSITA would have been familiar with systems-on-chip (SoCs) and application-specific integrated circuits (ASICs) (*i.e.*, "chips") when considering the disputed claim language. *Id.*, ¶ 84. This too is what the '775 Patent discusses: "A chip implementing cable modem system **100** [the overall system including both engines] will have only a small incremental hardware cost/functional increase over current stand-alone cable modem chips." '775 Patent, 4:58–60. A POSITA would have no trouble determining where one circuit begins and another ends, because integrating functional blocks on "a chip" does not render them indistinguishable.

This Court previously found no ambiguity in claim language reciting "first" and "third" circuits and having claim structure analogous to the claims at issue in the present case. In *Realtime Data, LLC v. Rackspace US, Inc.*, the claims recited four distinct circuits, including: "a first circuit configured to analyze a plurality of data blocks to recognize when an appropriate content independent compression algorithm is to be applied to the plurality of data blocks" and "a third circuit configured to analyze a data block from another portion of the plurality of data blocks for recognition of any characteristic, attribute, or parameter that is indicative of an appropriate content dependent algorithm to apply to the data block." No. 6:16-cv-00961-RWS-JDL, 2017 WL 2590195, at *12 (E.D. Tex. June 14, 2017). This Court rejected an indefiniteness challenge, finding the terms not indefinite and not in need of construction.

In *Realtime Data*, as here, "a [POSITA] would read the operations provided for each circuit and understand what potential electronic components could perform those operations." *Id.* at *14–15. This is evident when reading the claim elements as a whole, and not just the introductory language: "the data networking engine programmed with software that when executed by the at least one processor of the first circuit causes the data networking engine to perform home networking functions including interfacing with customer provided equipment" and "the cable modem engine programmed with software that when executed by the at least one processor of the second circuit causes the cable modem engine to perform cable modem functions other than the home networking functions performed by the data networking engine." '775 Patent, cl. 18. A POSITA would understand the operations of the claimed engines (incorporating circuits and one or more processors) in view of the entire claim element, and would be familiar with electronic components for performing those operations. *See* Kramer Decl. ¶ 84.

Claim Term	Entropic's Construction	Charter's Construction
"data bus" (cl. 18)	Plain and ordinary meaning. No construction necessary.	Indefinite.

The Court should construe this term according to its plain and ordinary meaning because:

- The meaning of "data bus" is well-known to a POSITA, as confirmed by the intrinsic and extrinsic evidence.

Charter and its expert do not dispute that a data bus would have been easily understood by a POSITA. *See* Ex. 9, Almeroth Tr. at 113:11–14; *see also* Ex. 10, IEEE dictionary ("data bus" is "a bus used to communicate data to and from a processing unit or a storage device."). Dr. Kramer agrees. Kramer Decl. ¶¶ 101–102. With nothing more, Charter cannot meet its burden to demonstrate the term is indefinite, and no construction is necessary.

Claim Term	Entropic's Construction	Charter's Construction
"wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine" (cl. 18)	Plain and ordinary meaning. No construction necessary.	The cable modem engine and the data networking engine do not share any connecting circuitry, data paths, or memory devices.

The Court should reject Charter's proposed construction and construe this term according to its plain and ordinary meaning because:

- The '775 Patent discloses and claims partitioning in terms of "***Functional Partitioning***."
- Connecting the two engines (*i.e.*, by a data bus) does not destroy partition of functionality.
- Connecting the two engines is essential to the invention and to the claim itself. The claim requires a portion of the Cable Modem Engine ("CME")—namely the DOCSIS MAC processor—to pass data directly to the Data Networking Engine ("DNE").

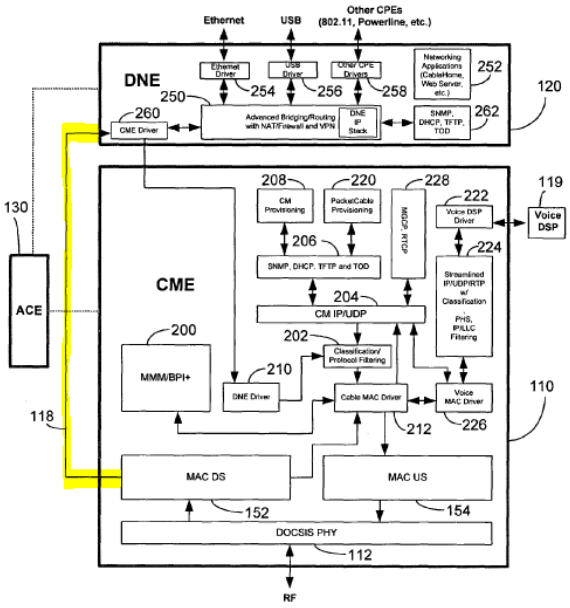
The disputed claim language explicitly recites that the ***functions*** of the DNE and CME are partitioned. This distinction is key because functions can be partitioned in hardware, software, or both. *See* Kramer Decl. ¶ 102. Functional partitioning is explicitly described in the specification as "localizing" the cable modem and data networking functions in the separate engines:

> ***Functional Partitioning***. Cable modem **100** completely partitions data networking ***functions*** (advanced bridging/routing, NAT/firewall, VPN, web server and CableHome applications) from DOCSIS cable modem functionality. This is accomplished by localizing data networking ***functions*** in the data networking engine processor and localizing cable modem ***functions*** in the cable modem engine processor.

'775 Patent, 4:13–19. A POSITA would understand that connecting the DNE and CME (*e.g.*, via a data bus) does not eliminate the compartmentalization of their respective functions. *Supra* 2; *see also* Kramer Decl. ¶ 102.

On the contrary, such a connection is required by the claims. Claim 18 requires the Cable Modem Engine (CME) be "configured to process downstream PDU packets and ***forward the processed packets directly*** to the [Data Networking Engine (DNE)]." Charter's definition forbidding any connection between the two engines cannot be correct. Without such a connection,

the claim language makes no sense. To say that this violates a variety of claim construction principles is an understatement. *See generally MySpace, Inc. v. GraphOn Corp.*, 672 F.3d 1250, 1256 (Fed. Cir. 2012) ("proper claim construction requires that we understand what the invention encompasses as well as how the claims are stated"); *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995) (must give meaning to all the words in a claim). The obvious and correct interpretation is that each engine carries out its respective functions, but they can communicate with one another. This is precisely what is disclosed by the '775 Patent, for example, connection **118** between the CME and DNE:



'775 Patent, FIG. 2 (showing partitioned CME and DNE connected by data path **118** highlighted in yellow). *See also*, *e.g.*, FIG. 1, 3:15–17 ("DS PDU packets are forwarded by [the DOCSIS MAC processor] directly to [DNE] **120** along path **118**, bypassing controller **116**").

Claim Term	Entropic's Construction	Charter's Construction
"DOCSIS functions" (cl. 19)	Plain and ordinary meaning. No construction necessary.	This limitation does not change the scope of claim 18

The Court should construe this term according to its plain and ordinary meaning because:

- All elements of the claim are presumed to have meaning.

- Charter's proposed construction violates the doctrine of claim differentiation.

Claim 18 states that the CME comprises a processor, programmed with software, that when executed causes the CME to perform "cable modem functions other than the home networking functions performed by the [DNE]." Dependent claim 19 increases the burden on the CME—"***all*** DOCSIS functions are localized in the [CME]." Logically, claim 18 does not require that each and every DOCSIS function be executed by the circuitry of the CME, while claim 19 does.

Charter is wrong as a matter of law because the Federal Circuit has repeatedly held that the Court must give meaning to all the words in a claim. *Exxon Chem. Patents*, 64 F.3d at 1557. Not only does Charter's proposed construction ignore the plain language of claim 18; it also violates the doctrine of claim differentiation by rendering claim 19 superfluous. *See Comark Comm'cns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (recognizing "a presumption that each claim in a patent has a different scope").

Claim Term	Entropic's Construction	Charter's Construction
"DOCSIS MAC processor" (cl. 18)	Plain and ordinary meaning. No construction necessary.	The DOCSIS MAC processor exactly as described in the patent specification (*see, e.g.*, '775 Patent, at 3:1-20; 4:41-57; *id.*, at Figures 1 & 2). Otherwise indefinite.
"DOCSIS controller" (cl. 18)	Plain and ordinary meaning. No construction necessary.	The DOCSIS controller exactly as described in the patent specification (*see, e.g.*, '775 Patent, at 3:21-48; 4:41-57; *id.*, at Figures 1 & 2). Otherwise indefinite.

The Court should reject the limitation sought by Charter's proposed construction and apply the plain and ordinary meaning because:

- Charter's proposed construction improperly limits the claim to specific ***exemplary*** embodiments described in the specification.
- Charter has already agreed that this term is not a means-plus-function term (35 U.S.C. § 112(6)), but proposes to construe the term as such.

The Federal Circuit and this Court have held that the terms "processor" and "controller" denote known classes of structures—generally understood to POSITAs. *See e.g. Smartflash LLC*

v. Apple Inc., 77 F. Supp. 3d 535, 541 (E.D. Tex. 2014) ("'processor' . . . describes a class of structures") (citing *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1300); *see also Barkan Wireless IP Holdings v. Samsung Electronics Co.*, 2:18-cv-28, 2019 WL 497902, *22 (E.D. Tex. Feb. 7, 2019) ("no persuasive evidence that the term 'controller' fails to connote structure in the relevant art"). Likewise, there is no dispute that "DOCSIS" (Data Over Cable Service Interface Specification) and "DOCSIS MAC" (Medium Access Control) were established standards known to POSITAs as of the priority date. *See e.g.*, Kramer Decl. ¶ 84. *Phillips* counsels that the Court's claim construction analysis stops there absent a "clear disavowal" (which is not alleged here). *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1320 (Fed. Cir. 2005).

Charter commits the "cardinal sin" of claim construction by improperly seeking to limit claim 18 to particular embodiments described in the specification (*e.g.* '775 Patent, 3:1–48, 4:41–57). *See Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002). The specification plainly states these are merely ***exemplary*** implementations. *See e.g.* '775 Patent, 3:17–19 ("***In one implementation***, processor **114** is an ARM9TDMI-based RISC processor"), 3:24–25 ("***In one implementation***, controller **116** is an ARM940-based RISC processor"); *see also* Ex. 9, Almeroth Tr. at 109:10–110:8 (admitting these are exemplary implementations). In fact, claim 12, which depends from claim 1 and has the same language of claim 18 ("DOCSIS MAC processor" and "DOCSIS controller"), explicitly recites "wherein the DOCSIS MAC processor is an ARM9TDMI-based RISC processor, and wherein the DOCSIS controller is an ARM940-based RISC processor." Thus, the same terms in claim 1 would not be limited as Charter suggests, per claim differentiation, and there is no reason not to apply the same definition to claim 18. *See Comark*, 156 F.3d at 1187. Indeed, at the time of the invention, a POSITA would have recognized that ARM-based processors were common and that many other types of processors were readily

available, and they would have seen no reason to limit the claims to the specific ARM-based processors disclosed in the specification. *See* Kramer Decl. ¶ 98.

Moreover, the specification confirms that a POSITA would understand "DOCSIS MAC processor" and "DOCSIS controller" as referring to portions of the CME corresponding respectively to the functions of MAC processing for DOCSIS and controlling DOCSIS functions. *See* '775 Patent, 3:1–7 (the DOCSIS MAC processor "implements real-time critical MAC functions for both upstream (US) and downstream (DS) communications . . . includ[ing] US and DS synchronization, DS MAC address filtering, DS protocol filtering, US and DS PHS, concatenation, fragmentation, MAP processing, US transmission scheduling, as well as DOCSIS link-layer DES encryption and decryption."), 3:27–38 (describing how the DOCSIS controller implements DOCSIS functions such as MAC management message (MMM) processing, IGMP, MAC address learning, classification, US protocol filtering, CM IP stack and software downloading, cable modem IP/UDP functions, SNMP, DHCP, TFTP, and TOD functionality, and cable modem provisioning); *see also* Kramer Decl. ¶¶ 92–93.

Charter's construction is an attempt to obtain a means-plus-function construction, while avoiding the high legal hurdles to invoking § 112(6). This Court has repeatedly rejected attempts to limit "processor" elements to 112(6). *See generally Smartflash LLC v. Apple Inc.*, 77 F. Supp. 3d 535, 541 (E.D. Tex. 2014); *see also Realtime Data*, 2017 WL 2590195 at *17 (taking note of "the numerous precedent from this District finding the term 'processor' is not a [MPF] term"). Charter steadfastly maintains it is not seeking MPF construction. *See* Ex. 11, Email from A. Boardman ("Charter still does not contend that any proposed term is governed by 35 U.S.C. § 112(6)"). Yet the proposed construction is precisely that which would be yielded by MPF analysis—Charter limits the term to the processor models "***exactly as described***" in the

specification and requires the CME to have two processors when the claim only requires one. The Court should reject Charter's effort to make an end run around controlling precedent.

B. '826 Patent

Claim Term	Entropic's Construction	Charter's Construction
"network management messages" (cls. 1, 2)	Plain and ordinary meaning. No construction necessary.	Messages which report on the status of the network based on an analysis of the measured characteristic.

The Court should construe this term according to its plain and ordinary meaning because "network management message" is a plain English phrase that means exactly what it says. The '826 Patent's specification confirms the phrase is meant to convey all its ordinary possibilities, in disclosing a list of exemplary types/uses of the messages. *See e.g.*, '826 Patent, 3:63–4:2 (numbers added for reference): "Such messages ***may*** comprise, ***for example***, network status updates **[1]** indicating whether one or more communication parameters of one or more received television or DOCSIS channels are outside acceptable bounds, and/or **[2]** conveying measured/determined characteristics back to a source of the received signal (*e.g.*, back to a cable headend)." Such messages may be used, "***in an example embodiment***, [to] adjust transmission parameters (*e.g.*, modulation parameters, transmit power, frequency offsets, *etc.*)" as well as generically to "perform other maintenance/management based on the received messages." *Id.* at 3:11–15.

Charter is attempting to construe the phrase to exclude one of the explicitly stated message types, namely messages **[2]** "conveying measured/determined characteristics." *Id.* at 3:67–4:1. This is a bold and improper attempt to limit the claim that flies directly in the face of the disclosure.

Moreover, a different portion of claim 1 already recites: "controlling the transmission of network management messages back to said headend ***based on said measured characteristic of said received signal***." As such, there are only two possibilities. Charter's construction either (1) confusingly imports one element into another, or (2) is a clever attempt to narrow the claim from

"***based on*** said measured characteristic," to Charter's "an ***analysis*** of the measured characteristic." Both are improper, further counseling for a rejection of Charter's recasting of the plain English phrase into far more words.

C. '008 Patent

Claim Term	Entropic's Construction	Charter's Construction
"operable to" (cl. 1)	Plain and ordinary meaning. No construction necessary.	Configured to.

Entropic is unsure how rephrasing this simple phrase will assist the jury, because it is unknown what distinction Charter seeks to introduce between the claim language and its proposal. There may be no dispute, but given the lack of detail Charter provided regarding its position, Entropic will respond to Charter's position once Charter clarifies the basis for its proposal.

Claim Term	Entropic's Construction	Charter's Construction
"digitize a received signal spanning an entire television spectrum comprising a plurality of television channels" (cl. 1)	Plain and ordinary meaning. No construction necessary.	The "received signal" contains only television channels.

The Court should reject Charter's effort to limit this term to television channels and construe this term according to its plain and ordinary meaning because:

- The claim language "comprising" is not ambiguous—the "received signal" is permitted to include other signal components in addition to the television channels.

Charter's proposal rewrites the claim. The plain language of the claim recites "***comprising*** a plurality of television channels," indicating that the "received signal spanning an entire television spectrum" is ***not limited*** to only television channels. The spectrum contains TV channels, but it may contain additional material. *See Georgia-Pacific Corp. v. US Gypsum Co.*, 195 F.3d 1322, 1327 ("The transitional term 'comprising' . . . is open-ended and does not exclude additional, unrecited elements or method steps"). Indeed, the specification confirms that the received signal may comprise other kinds of information, such as data via the IP network and one or more DOCSIS

channels. '008 Patent, 2:44–54. Nor does anything in the specification indicate that "television spectrum" should be limited to ***only*** "television channels." *See id.* at 3:12–16 ("The signal S may be the result of a plurality of ***television and/or DOCSIS channels*** being frequency division multiplexed into a single signal."), 4:45–47 ("The data processing module **156** may process one or more of bands C_1–C_J to recover data on one or more channels (*e.g.*, ***television and/or DOCSIS channels***)"), 5:60–62 ("Accordingly, for cable television/DOCSIS, the ADC **256** may be operable to digitize the entire cable downstream (*e.g.*, from ~55 MHz to ~1002 MHz).").

Claim Term	Entropic's Construction	Charter's Construction
"signal monitor," "data processor," "channelizer" (cl. 1)	Plain and ordinary meaning. No construction necessary.	Three separate pieces of hardware configured to perform the functions the claim ascribes to the signal monitor, data processor, and channelizer, respectively.

The Court should construe these according to their plain and ordinary meaning because:

- There is no anchor anywhere in the claim language for a "separateness" requirement.
- The specification teaches the opposite—the signal monitor, data processer, and channelizer are expressly not required to be "three separate pieces of hardware."

Charter wholesale invents a new limitation for claim 1—requiring the signal monitor, data processor, and channelizer to be "three separate pieces of hardware." However, the plain language of claim 1 does not support such a requirement. No phrase even arguably related to separateness is present. Indeed, the specification is clear that these three items do ***not*** have to be implemented on separate pieces of hardware. Subassembly **174** includes all three items: the signal monitor **154**, data processor **156**, and channelizer **152**. *See id.* at FIG. 1C. The '008 Patent then states: "[t]he various modules of the subassembly **174** may reside in . . . ***one or more*** integrated circuits." *Id.* at 4:56–59. "One or more" plainly includes "one," thus destroying any notion that the three claim elements must be implemented on "separate pieces of hardware."

D. ’690 Patent

Claim Term	Entropic’s Construction	Charter’s Construction
“probe” (cls. 1, 7)	Plain and ordinary meaning. No construction necessary.	A packet transmitted to a network node which the node compares to a reference packet having a known form in order to determine characteristics of the channel on which the packet was transmitted.
“physical layer probe” (cls. 9, 11)	Plain and ordinary meaning. No construction necessary.	Physical layer probe means probe. Otherwise indefinite.

The Court should construe these according to their plain and ordinary meaning because:

- “Probe” and “physical layer probe” are different claim elements, presumed to have different meanings.
- There is no intrinsic support for requiring the probe to be “compare[d] to a ***reference packet*** having a known form in order to determine characteristics of the channel on which the packet was transmitted.”

Beginning with the plain language of the claims, it is apparent there is a distinction between “probe[s]” and “physical layer probe[s].” The term “probe” is broader and is not limited to the physical layer. Entropic’s technical tutorial, at slide 18, provides a visual representation of the extremely common OSI model and its layers. The physical layer (PHY) is just ***one*** of ***seven*** layers. *See* Entropic’s Technical Tutorial, submitted on May 9, 2023, at Slide 18; *see also* Ex. F to Almeroth Decl. at [0009] (“In cable modems adhering to the well-known OSI reference model, the lowest layer is the Physical layer (PHY), while the next layer up is the Data Link layer.”). Charter’s proposed construction—whereby “physical layer probe” simply means “probe”—therefore fails to give meaning to all the words of the claim. *See e.g. Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

Additionally, Charter’s proposed construction imposes on “probe” a lengthy requirement of a specific function, in clear violation of the rule against importing the specification into the claim. *See e.g. Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002).

The specification describes how the receiver determined probes may be used in a variety of applications, and identifies several exemplary embodiments. *See* '690 Patent, 2:20–27, 6:59–7:11. Not only are these clearly characterized as exemplary embodiments; there is no indication that these embodiments require comparing with a "reference packet." Notably, the term "reference packet" appears nowhere in the specification. Entropic awaits Charter's explanation for its construction of this phrase to more meaningfully address it, if necessary.

Claim Term	Entropic's Construction	Charter's Construction
"probe request" (cls. 1, 7, 8, 9, 11, 15, 16)	Plain and ordinary meaning. No construction necessary.	A request sent by a first network node to a second network node which defines the form of a probe to be generated and transmitted by the second network node. The probe request specifies at least the content payload of the probe.

The Court should construe this term according to its plain and ordinary meaning because:

- Charter's proposed construction is needlessly complex and incorporates language already appearing in the claims.
- The use of "first network node" and "second network node" in Charter's proposed construction is potentially confusing because the claims also recite "first" and "second node[s]," but these do not necessarily correlate to what Charter calls the "first" and "second network node."

The plain language of the claims confirms that "probe request" means exactly what it sounds like—a request for a probe. *See e.g.* '690 Patent, cl. 1 ("receiving in a first node, a probe request specifying a first plurality of parameters associated with the generation and transmission of a probe"). Although it is difficult to divine Charter's thought process, the proposed 42-word construction seems to incorporate limitations haphazardly from various independent claims and amalgamate them. This is illustrated in the chart below.

Charter's proposed wording	Source in various claims?
"which defines the form of a probe to be generated and transmitted"	Claim 1 – "generating the probe . . . wherein the probe has a form dictated by the first plurality of parameters" Claim 9 – "the first plurality of probe parameters comprising a form for the probe"

Charter's proposed wording	Source in various claims?
"The probe request specifies at least the content payload of the probe"	Claim 1 – "the first plurality of parameters at least specify content payload of the probe" Claim 17 – "the first plurality of probe parameters comprising at least a payload content for the probe"
"A request sent by a first network node to a second network node"	Claim 9 – "a first node transmitting a probe request to a second node"

Charter's approach is flawed for two reasons. First, it would result in "[c]onstruing a claim term to include features of that term already recited in the claims"—something the Federal Circuit has cautioned against. *See Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237 (Fed. Cir. 2016). Second, it adds limitations in places where the patent applicant clearly did not intend. For example, claims 1 and 17 expressly recite a "content payload [of/for] the probe," ***but claim 9 does not***. *See Seven Networks, LLC v. Apple Inc.*, 2:19-cv-115 (E.D. Tex. Mar. 31, 2020) (noting that the separate recital of a limitation suggests that if the patentee had intended to include that limitation, "the patentee would have said so").

Finally, Charter's proposed construction introduces confusion because it confuses which node sends and which receives. Charter requires the probe request to be sent "***by*** a first network node to a second network node." However, in claim 1 the "first node" is the ***receiver***, not the sender, of the request. '690 Patent, cl. 1 ("receiving in a first node, a probe request"). Moreover, claim 1 is open-ended as to which node sends the request. *Compare id.*, cl. 1 with cl. 6 ("The method of claim 1, wherein the probe request is generated by the second node."); *see also* '690 Patent, 7:12–13 ("In other embodiments, the probe request might be transmitted by a different node than the probe receiver"); *see also* Ex. 9, Almeroth Tr. at 125:11–126:19 (confirming this is the case). Charter's proposed construction is incorrect and will confuse the jury.

Claim Term	Entropic's Construction	Charter's Construction
"generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters" ('690 Patent, cl. 1)	Plain and ordinary meaning. No construction necessary.	Indefinite.
"wherein the probe is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node" ('690 Patent, cl. 9)	Plain and ordinary meaning. No construction necessary.	Indefinite.
"the first plurality of probe parameters comprising a form for the probe including a modulation profile for the probe" ('690 Patent, cl. 9)	Plain and ordinary meaning. No construction necessary.	Indefinite.

These terms are not indefinite, and the Court should construe these according to their plain and ordinary meaning because:

- There is no ambiguity or inconsistency between the use of these terms in the claims.
- A POSITA would understand there are two sets of parameters—one set which relates to the probe's ***form***, and another set relating to any characteristic of the probe.

The plain and ordinary meaning of these terms would be evident to a POSITA, and nothing implicates such ambiguity as to meet the high legal bar of indefiniteness. The key point is a simple one of linguistic logic. Not all probe parameters specify a ***form***. Probe parameters might instead relate to other characteristics of the probe. Yet all such parameters—whether they underlie the probe's form or otherwise—nonetheless may have a say in the probe's generation. In these claims, the second set—the "second plurality"—does, because the claim states the probe is generated in accordance with the parameters. Thus, the structure of claims 1 and 9 make perfect sense. Beginning with claim 1, the node generates a probe "in accordance with" two pluralities of parameters. The first plurality dictates a form of the generated probe. Meanwhile, the second plurality affects any other characteristic. *See* '690 Patent, cl. 1; *see also* Kramer Decl. ¶ 133 ("A POSITA would understand that what the claim requires is that parameters are specified in the probe request, and at least one of these parameters (*i.e.*, the first plurality) dictates a form of the

probe. A POSITA would understand that the other parameters (*i.e.*, the second plurality and any additional parameters) need not specify a form of the probe.").

Likewise, claim 9 recites a structure like claim 1. There are two pluralities of parameters. The probe must be "generated in accordance with" both. Claim 9 then specifies that the first plurality of parameters comprises at least a "form" for the probe, and more specifically a "modulation profile." As with claim 1, the second plurality is present for any purpose, not merely form. The specification confirms the POSITA's understanding that not all parameters necessarily relate to "a form" of the probe. *See id.* at ¶¶ 136–138. The specification of the '690 Patent identifies several exemplary parameters that can be used to generate a probe. *See* '690 Patent, 2:3–19; *see also id.* at 3:8–11 ("FIG. 5 illustrates examples of parameters that may be modified or determined for generating a probe request according to an embodiment of the disclosed method and apparatus"). Moreover, a POSITA would understand that the point of the probe request is for a node to generate a probe containing responsive information. Kramer Decl. ¶ 138. A POSITA would therefore understand that the ***determined*** "second plurality of parameters" could include such responsive information. *Id*. These would be parameters that are returned in the payload of the probe but which do not necessarily relate to a ***form*** of the probe. *Id*. There is no ambiguity here, and therefore Entropic awaits Charter's explanation of how the language is clearly and convincingly indefinite.

E. '362 Patent

Claim Term	Entropic's Construction	Charter's Construction
"downconverting . . . a plurality of frequencies" (cl. 11)	Plain and ordinary meaning. No construction necessary.	Downconverting a plurality of frequencies of an analog radio frequency (RF) signal.

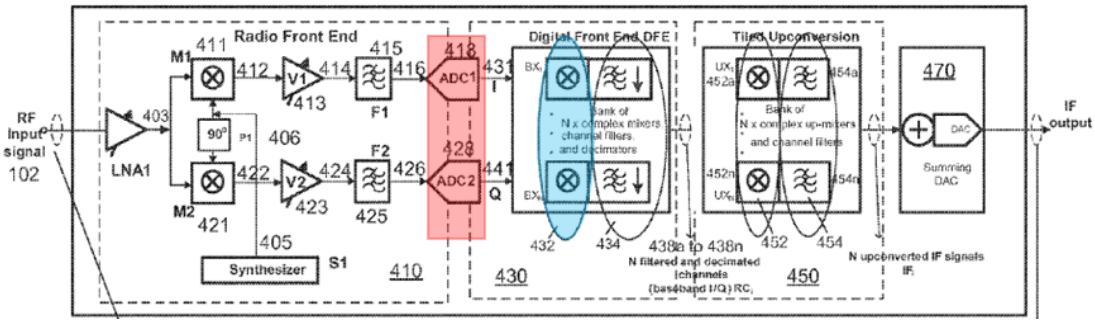
The Court should construe this term according to its plain and ordinary meaning because:

- Charter improperly limits the claim to downconverting ***only analog*** signals, excluding

digital downconversion altogether.

- The plain language imposes no analog-only requirement.
- The specification clearly describes examples of downconverting in the digital domain.

The issue here is analog vs. digital. There seems to be general agreement that downconverting is well-understood. The process brings "down" the frequency of a signal, using a "mixer" or a "mixing" process. The '362 Patent plainly discloses that this mixing, and thus downconversion, may be accomplished on either analog signals or their digital versions. It is easy to tell because the signal passes through an analog-to-digital converter (ADC). If mixing occurs ***before*** the ADC, it is being performed on an analog signal. If performed ***after*** the ADC, it is digital mixing performed on the digital signal. Fig. 4 of the '362 Patent clearly discloses mixing/downconversion of a digital signal, by mixers **432** (blue) operating ***after*** ADC's **418** and **428** (red):



'362 Patent, FIG. 4. Thus, the "mixers" **432** are downcoverting a digital signal. *See id.* 7:13–27.

There is also no support in the specification for limiting the plurality of frequencies to an analog ***radio frequency (RF)*** signal. In fact, the specification refers to the "downconverting" functionality via the above-mentioned "mixer" or "mixer modules" synonymously as "down-shifting" and/or "down-mixing," and does not require that such down-shifting or down-mixing involve only radio signals. *See id.* at 2:45–49. Thus, the specification clearly teaches that it is possible for the plurality of frequencies to be a digital signal, which directly conflicts with Charter's proposed construction.

Claim Term	Entropic's Construction	Charter's Construction
order of the steps (cl. 11)	Plain and ordinary meaning. No construction necessary.	Claimed steps must be performed in the order recited in the claim.

Claim 11 of the '362 Patent recites four steps including "downconverting," "digitizing," "selecting," and "outputting." The Court should construe the order of these steps according to its plain and ordinary meaning, including that the steps may be performed in any order because:

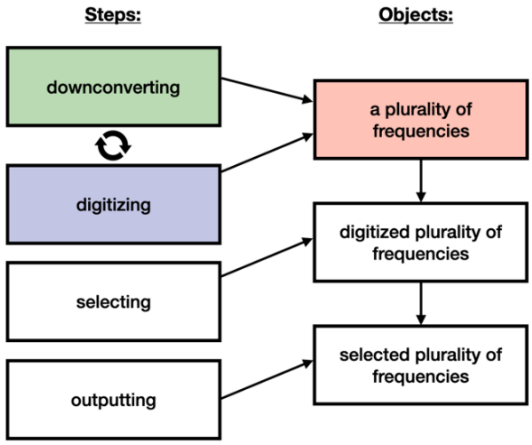
- The default rule of claim construction is that method steps may be performed in any order.
- The first two elements perform operations on the same grammatical object: "a plurality of frequencies…"
- Because the digitizing step does not refer to the output of the "downconverting" step (but rather its input), the claim itself requires no particular order of those steps.

As a preliminary matter, the general rule of claim construction is that method steps may be performed in any order as long as the claim does not require a specific order. *See Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342–43 (Fed. Cir. 2001) ("[N]othing in the claim or the specification directly or implicitly requires" the claim be performed in the order written.) The steps may only be construed to require an order if the method steps ***require*** that they be performed in the order written. *See id.*; *see also, Baldwin Graphic Systems, Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1345 (Fed. Cir. 2008) ("[A]lthough a method claim necessarily recites the steps of the method in a particular order, as a general rule the claim is not limited to performance of the steps in the order recited, unless the claim explicitly or implicitly requires a specific order."). Where a question arises as to the order of the steps, courts use a two-part test: first, the court looks to the claim language itself to determine if, as a matter of logic or grammar, they must be performed in the order written; and second, the court looks to the specification to determine whether it directly or implicitly requires a narrow construction. *See Gift Express*, 256 F.3d at 134; *see also, Altiris v. Symantec Corp.*, 318 F.3d 1363, 1369–70 (Fed. Cir. 2003).

First, nothing in the claim language itself requires that the steps be performed in the order

written. The first two claim elements, the steps of "downconverting" and "digitizing," perform operations on the same grammatical object: "a plurality of frequencies…" (see diagram below):

11. A method comprising:
in a wideband receiver system:
downconverting, by a mixer module of said wideband receiver system, a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels;
digitizing, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, said plurality of frequencies comprising said plurality of desired television channels and said plurality of undesired television channels;
selecting, by digital circuitry of said wideband receiver system, said plurality of desired television channels from said digitized plurality of frequencies; and
outputting, by said digital circuitry of said wideband receiver system, said selected plurality of television channels to a demodulator as a digital datastream.



There is no grammatical or logical reason why digitizing cannot occur before downconverting or *vice versa* since claim 11 states these steps are performed on the same object—the "plurality of frequencies." Nothing occurs in the "digitizing" step that would interfere with downconverting afterward; nor does anything in the "digitizing" step occur that requires downconverting as a predicate. As such, nothing in the claim language itself logically or grammatically requires that the steps be read in the same order.

Second, turning from the claim language to the specification, not only does the specification not require an order, it describes different orders in exemplary embodiments. As noted in the section above discussing the disputed term "downconverting . . . a plurality of frequencies," the specification clearly contemplates that digitizing could occur ***before*** downconverting. *See, e.g.*, '362 Patent, FIG. 4, 7:13–27. Specifically, Fig. 4 shows an exemplary embodiment wherein the analog-to-digital converter performing the digitizing could come ***before*** the mixer performing the downconverting. *See id.* Viewed in light of the differently ordered embodiments disclosed in the specification, Charter's request for an order of the steps limitation is nothing more than a second attempt by Charter to require that the claimed downconverting is

done on an analog signal only. As such, for the same reasons that the "downconverting . . . a plurality of frequencies" claim term should be construed according to its plain and ordinary meaning, the order of the steps should not be required to be performed in the order recited.

F. '682 Patent

Claim Term	Entropic's Construction	Charter's Construction
"a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics [corresponding to said one of said plurality of service groups]" (cl. 1)	Plain and ordinary meaning. No construction necessary.	Indefinite.

The Court should construe this term according to its plain and ordinary meaning because:

- Given the specification, Charter cannot carry the burden of establishing indefiniteness.

Any POSITA familiar with hybrid fiber coaxial ("HFC") networks understands what is meant by an SNR profile and SNR-related metrics. *See* Kramer Decl. ¶¶ 166, 172. Further, the adjectives "worst-case" and "composite" have plain meanings to a POSITA. *See id.* The specification confirms the claim terms are used in accord with a POSITA's expectations.

First, take an SNR-related metric. The specification confirms that SNR means "signal-to-noise-ratio" and discusses SNR profiles and SNR-related metrics (*i.e.*, metrics related to SNR) and their usage in grouping cable modems together. *See, e.g.*, '682 Patent, 3:53–63, Abstract ("A cable modem termination system (CMTS) may determine, for a plurality of cable modems served by the CMTS, a corresponding plurality of SNR-related metrics. The CMTS may assigning [sic] the cable modems among a plurality of service groups based on the SNR-related metrics.").

Second, the specification describes SNR profiles as the profile of "signal-to-noise ratio (SNR) versus frequency" ('682 Patent, 2:15–17) and illustrates examples in Figs. 2B and 2C (*id.* at 4:6–8: "In this regard, FIG. 2B shows a SNR versus frequency graph for an example HFC

network that uses eight channels/subcarriers."). *Third*, the specification describes examples of a "worst-case SNR profile" is the SNR profile related to a cable modem or group of cable modems, indicating their worst-case performance metrics:

> The line **222** in FIG. **2**B represents a composite worst-case SNR profile for one or more CM(s) in the HFC network to which the message **202** is destined. For example, line **222** may be a SNR profile for a single CM $\mathbf{112}_X$ to which the message **202** is to be unicast. As another example, the line **222** may be a composite worst-case SNR profile for a plurality of CMs **112** of a particular service group to which the message **202** is to be multicast. As another example, the line **222** may be a composite worst-case SNR profile for all CMs of an HFC network handled by the CMTS **102** to which the message **202** is to be broadcast. The message **202** may

Id. at 4:9–20; *see also* FIG. 2C and 5:7–12. The specification further explains how understanding this worst-case expectation for a group of cable modems across the various frequencies (the profile) can be used to optimize choices for that group:

> For example, for any particular service group, the modulation order and FEC code rate to be used on a particular subcarrier may be determined based on the worst case SNR for that subcarrier among the CMs in that particular service group. Thus, it can be seen that grouping CMs based on SNR profiles may enable configuring physical layer communications parameters to such that one or more communication parameters (throughput, reliability, etc.) is optimal, or near-optimal, for all of the CMs in the service group. For example, without such grouping by SNR profile, one CM in a particular service group may have substantially lower SNR on one or more channels/subcarriers. As a result, all CMs in that particular service group may be forced to use physical layer parameters supported by this "lowest common denominator" CM. This may result in a lot of wasted capacity for the remaining CMs.

Id. at 5:42–57. Moreover, the concept of a ***composite*** SNR-related metric is understood by a POSITA "as being a composite of metrics in the context of worst-case SNR" (*see* Kramer Decl. ¶¶168–169), and is well-understood in view of the intrinsic evidence where a composite SNR profile is discussed (*see* '682 Patent, 4:40–52, 5:7-12, Fig. 3A).

Considering the '682 Patent's disclosure, it is unclear how Charter will argue a POSITA would not understand this term in view of the specification.

Claim Term	Entropic's Construction	Charter's Construction
"service group[s]" (cl. 1)	Plain and ordinary meaning. No construction necessary.	A "service group" is the complete set of downstream and upstream channels within a single CMTS that a single cable modem could potentially receive or transmit on.

The Court should construe this term according to its plain and ordinary meaning because:

- A "service group" is a plain English term, and the claim and specification confirm that the groups consist of cable modems (CMs), not ***channels***. Charter's construction is simply wrong.
- Furthermore, Charter is attempting to join the upstream and downstream channels without basis in the claim language and contrary to the specification.

The plain language of claim 1 of the '682 Patent is clear—the claim is about grouping cable modems (CMs) into service groups:

> **1**. A method comprising:
> determining, by a cable modem termination system (CMTS), for each cable modem served by said CMTS, a corresponding signal-to-noise ratio (SNR) related metric;
> assigning, by said CMTS, each cable modem among a plurality of service groups based on a respective corresponding SNR-related metric;

The specification clearly describes service groups including groupings of ***cable modems***, not channels: "FIGS. 4A and 4B illustrate the network of FIG 1, with different groupings of CMs based on one or both of: measured performance metric(s) and location within the HFC network." *Id.* at 2:24–27; *see also, id.* at Abstract ("The CMTS may assigning [sic] the cable modems among a plurality of service groups based on the SNR-related metrics. For any one of the cable modems, the CMTS may configure physical layer communication parameters to be used by the one of the modems based on a SNR-related metric of a service group to which the one of the modems is assigned."); *see also, id.* at 6:39–41 ("While FIGS. 3A and 3B depict SNR profiles and location

as two separate bases on which to assign CMs to service groups, the two may be used in combination."). This alone is fatal to Charter's construction.

However, Entropic notes that Charter's proposed construction is even more flawed in two additional aspects (though this seems to be a feature, not a bug). *First*, Charter does not merely replace cable modems with channels, it requires the group of channels to be both upstream and downstream. Yet the specification discloses the invention may facilitate the CMTS's communication with cable modems using physical layer parameters in ***either*** or both of the upstream and downstream. *See id.* at cl. 1, 5:1–20. "Physical layer parameters may be configured/coordinated using upstream and/or downstream MAP messages, upstream channel descriptors (UCDs)…and/or purpose-specific messages…" *Id.* at 5:21–27. *Second*, Charter's service groups are limited to "a single CMTS and ***a single cable modem***." Not only is this claim redrafting inconsistent with the claims, it also excludes embodiments described in the '682 Patent grouping several cable modems. Charter's proposed construction is improper at least in that it excludes embodiments disclosed in the specification. *Nobel Biocare Servs. AG v. Instradent USA, Inc.*, 903 F.3d 1365, 1381 (Fed. Cir. 2018), *as amended* (Sept. 20, 2018) (Where there is no disclaimer in the prosecution history, "there is a strong presumption against a claim construction that excludes a disclosed embodiment."); *see also SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365, 1378–79 (Fed. Cir. 2013) ("A claim construction that 'excludes the preferred embodiment is rarely, if ever, correct and would require highly persuasive evidentiary support.'"). The claim is directed to grouping cable modems, not channels. *See, e.g.*, '682 Patent, cl. 1; *id.* at Abstract.

Charter's construction suffers numerous fatal flaws and should be rejected.

Claim Term	Entropic's Construction	Charter's Construction
"[communicating with/corresponding to] said one of said plurality of service groups" (cl. 1)	Plain and ordinary meaning. No construction necessary.	Indefinite.

The Court should construe this term according to its plain and ordinary meaning because:

- Given the intrinsic evidence, Charter cannot carry the burden of establishing indefiniteness.

Claim 1 itself of the '682 Patent is clear on how service groups, composed of cable modems, and the CMTS communicate: "selecting, by said CMTS, one or more physical layer communication parameter to be used for communicating with said one of said plurality of service groups based on said composite SNR-related metric…" '682 Patent, cl. 1. The "said plurality" is the very same plurality of service groups referenced in the preceding element. The specification has a multitude of references to the communication with the service group by way of, for example, physical layer parameters since the invention could not work without communication. *Id*. at Abstract, 5:7–15, 5:21–27, 5:58–6:6. Further, the terms "communicating," "corresponding," and "plurality" each have plain English meanings that are well-understood, and the combination of the terms do not create any ambiguity.

V. CONCLUSION

For the reasons set forth above, Entropic respectfully requests that this Court adopt its proposed constructions of the claim terms at issue.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a) and served on all counsel of record via the Court's CM/ECF system on this 9th day of May, 2023.

/s/ Andrea L. Fair
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